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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/085,913 Confirmation No. 3329
Applicant (s) : James J. Jakubowski, Wayne R. Willkomm, James E. Pate
Filed : February 27, 2002
TC/A.U. : 1714
Examiner : Patrick Niland
Title : CONTINUOUS PROCESS FOR PREPARING A POLYURETHANE
LATEX

Docket No. : 43231C
Customer No. : 00109

CERTIFICATION OF FACSIMILE TRANSMISSION
I HEREBY CERTIFY THAT THIS PAPER IS BEING FACSIMILE TRANSMITTED TO THE U.S. PATENT AND TRADEMARK OFFICE ON THE DATE SHOWN BELOW: March 16, 2004 DATE OF DEPOSIT Carol A. Axtell PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE <i>Carol A. Axtell</i> SIGNATURE OF PERSON SIGNING CERTIFICATE 3/16/04 DATE OF SIGNATURE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER CFR 1.131

I, James J. Jakubowski, declare and state that I am a co-inventor for the above-identified patent application.

As evidenced by the following exhibits, I conceived and reduced to practice in the United States the invention claimed in the above-identified patent application prior to December 18, 1996, the filing date of the cited United States Patent 5,859,111.

Prior to December 18, 1996, I carried out the following experiment: I calibrated the flow rate of a polyurethane/urea prepolymer, which was prepared by

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reacting 70% by weight VORANOL 2120 polyol with 30% by weight ISONATE 50 MDI, to feed continuously through a conduit at a rate of 30.9 g/min.

I precalibrated the flow rate of 25% by weight DS-10 sodium dodecylbenzene sulfonate surfactant in a 90:10 weight:weight percent mixture of water and ethanol to flow through a second conduit at a rate of 2.6 g/min. I also precalibrated an initial aqueous stream (IA stream) to flow through a third conduit initially at a rate of 8 g/min, then adjusted the flow rate of the IA stream to 4 g/min to minimize particle size.

These three streams were merged and passed through a centrifugal pump to form a high internal phase ratio emulsion (HIPE) stream. The HIPE stream was merged with a water stream precalibrated to flow at a rate of 10 g/min and a 10% piperazine in water stream precalibrated to flow at a rate of 18 g/min and the combined streams were passed through a second centrifugal pump to form a polyurethane/urea latex.

I recorded this data in a table, which is attached as Exhibit I. By way of explanation, dispersity refers to the polydispersity of latex, Surf rate refers to the flow rate of the surfactant stream, Poly rate refers to the flow rate of the prepolymer stream, I.A. rate refers to the flow rate initial aqueous stream, Feed ratio refers to ratio of solids to water, Dil. rate #1 refers to the flow rate of the water stream, and Dil. rate #2 refers to the flow rate of the 10% aqueous piperazine.

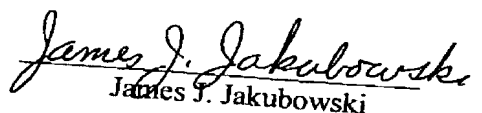
The percent solids of the polyurethane latex was calculated to be 52.4 percent. I isolated a sample of the latex at 1 hour and 12 minutes and analyzed it using a Coulter LS Particle Size Analyzer, the histogram of which analysis appears as Exhibit II. The Analyzer calculated the mean volume average particle size of the latex to be 0.624 microns.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that I made these statements with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both,

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under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 3/15/2004


James J. Jakubowski

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RSW/caa

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EXHIBIT I

1125-9601388-40

See Attachment 1125-9600338
 Bonding serum
 08/29/70, 71

Polymer # 1125-9600338-11, 70% Voranol 2120/30% Isonate 50
 Solvent none

Additive 25% DS-10 in 90/10 water/ethanol

Date run

Notes:

Bath temperature controlled at 10 C

30 N2 pressure in polymer feed tank, psi

30.9 Calibration of polymer feed pump, g/minute

816 Polymer Feed Loaded, g

I. A. feed: water

Dil feed: water

Surfactant feed set at 2.1% of polymer

* 10% piperazine in water added to pump #3

** run stopped as product starting to coagulate in pump being added

ID No	Time Start	Time of Sample	Particle Size (µm)	Dispersity	Surf. Rate	Poly. Rate	I.A. Rate	Feed Ratio	Dil. #1 Rate	Dil. #2 Rate	Press. #1 (psi)	Press. #2 (psi)	Freq. Cent.1 (Hz)	Freq. Cent.2 (%)	Freq. Cent.3 (Hz)
	0:26				2.6	30.9	8	3.1	10	0	15	10	20	40	20
	0:36				2.6	30.9	7	3.5	10	0	28	10			
	0:40				2.6	30.9	6	3.9	10	0	33	11			
	0:42	0:42	2.603	2.94	2.6	30.9	5	4.4	10	0	35	15			
	0:51	0:50	0.859	1.36	2.6	30.9	4	5.2	10	0	42	19			
	0:59	0:59	0.701	1.1	2.6	30.9	4	5.2	10	0	55	30			
	1:08	1:12	0.642	1.13	2.6	30.9	4	5.2	10	18	57	29			
	1:22	1:38	0.633	1.1	2.6	30.9	4	5.2	10	18	60	31			
	1:57	1:57	0.695	1.13	2.6	30.9	4	5.2	10	18	56	29			
	2:38	*			2.6	30.9	4	5.2	10	18	56	30			
	stop	2:51	0.71	1.1	2.6	30.9	4	5.2	10	18	**				

Jane Jekowich

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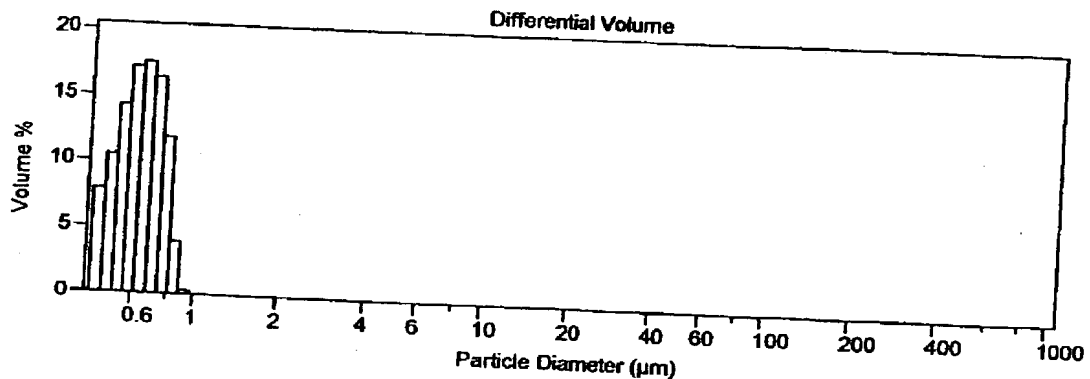
EXHIBIT II



LS Particle Size Analyzer

13:56

File name: JJ103196.\$05
 Sample ID: 1:12
 Operator: JAKUBOWSKI
 Comments: 70% V-2120/30% I-50, 2% DS-10, 10 C RUN
 Optical model: polysty.umd
 LS 130
 Group ID: JJ103196
 Run number: 5
 Micro-volume Module



Volume Statistics (Arithmetic)

jj103196.\$05

Calculations from 0.429 μm to 900 μm

Volume	100.0%	95% Conf. Limits:	0.412-0.837 μm
Mean:	0.624 μm	S.D.:	0.108 μm
Median:	0.618 μm	Variance:	0.0118 μm ²
Mean/Median Ratio:	1.009	C.V.:	17.4%
Mode:	0.647 μm	Skewness:	0.23 Right skewed
		Kurtosis:	-0.738 Platykurtic

% >	10	25	50	75	90
Size μm	0.778	0.706	0.618	0.538	0.479

Number Statistics (Arithmetic)

jj103196.\$05

Calculations from 0.429 μm to 900 μm

Number	100.0%	95% Conf. Limits:	0.376-0.764 μm
Mean:	0.570 μm	S.D.:	0.0989 μm
Median:	0.553 μm	Variance:	0.00977 μm ²
Mean/Median Ratio:	1.030	C.V.:	17.3%
Mode:	0.539 μm	Skewness:	0.699 Right skewed
		Kurtosis:	-0.197 Platykurtic

% >	10	25	50	75	90
Size μm	0.717	0.636	0.553	0.489	0.452

 Author: *James Jakubowski*
 Read and Understood By: